

Fires, Floods, and Other Extreme Events

Topic	Product	Center
<i>Flooding</i>		
Extreme weather projections	AE.6.1.3	CEMM
	AE.6.1.5	CEMM
Disaster cleanup	HS.6.5008.5014	CESER
	HS.6.5008.5080	CESER
	SHC.10.3.3	CESER
Community resilience assessment	SHC.10.1.2	CEMM
	SHC.10.4.1	CEMM
	SHC.10.4.2	CPHEA
	SHC.10.4.3	CPHEA
	SHC.10.4.4	CEMM
	SHC.10.5.7	CPHEA
	SHC.4.1.2	CESER
	SHC.4.1.4	CESER
	SHC.9.3.2	CEMM
Ecosystem resilience assessment	SHC.10.5.1	CPHEA
	SHC.10.5.3	CEMM
	AE.6.1.4	CEMM
	AE.6.3.6	CEMM
	AE.6.4.2	CPHEA
	AE.6.4.3	CPHEA
Stormwater management	AE.6.3.1	CESER
	AE.6.3.2	CPHEA
	AE.6.3.3	CEMM
	SHC.4.1.1	CESER
<i>HABs</i>	SSWR.4.3.2	CEMM
Water reuse	SSWR.10.2.1	CESER
	SSWR.10.2.2	CEMM
	SSWR.10.2.3	CESER
	SSWR.9.2.1	CESER
	SSWR.9.2.2	CESER
	SSWR.9.2.3	CESER

Title

Dynamically downscaled projections of changes to extreme weather across the CONUS
Summary of improved high-resolution simulation of extreme weather events

Best practices for fostering social acceptance and minimizing social impacts during disaster waste management.
Case Study: Estimation of Waste Following a Large-Scale Natural Disaster
Social Acceptance of Disaster Waste and Debris

Assessment of Multidimensional Community Vulnerability and Resilience
Models and Simulations for Community Vulnerability and Climate Resiliency to Flood Impacts on Contaminated Sites in Partnership with Regions and States
Best Practices for Assessing Community and Contaminated Site Vulnerability to Extreme Events
Community Health Effects of Hurricane-related Flooding
Vulnerability of Waste Infrastructure to Extreme Events
Modeling Urban Dynamics in a Global Change Context to Improve Community Resilience
National Assessment of Fluvial and Coastal Flooding on Tanks Infrastructure
Database V2 – identifies facilities subject to flooding, wildfires and subsidence from overdrawn groundwater in drought conditions
Risks of Extreme Events to Superfund, Community Waste Management and Remediation Activities and Verification the Climate Resilience Screening

Protecting Coastal Communities and Contaminated Sites with Resilient Coastal Wetlands
Ecosystem Service Assessment as a Tool for Building Community Resilience to Flood Risk
Projected changes to IDF curves from dynamically downscaled scenarios
Identification of resilient watershed BMPs under scenarios of future climate and land-use change: Regions 1, 7, and 10 case studies
Report characterizing and assessing the resilience and recovery potential of watersheds challenged by extreme events to identify key refugia
Report on the application of vulnerability assessment results and innovative methods to identify resilient sites and assess trends

Summary of coastal water program risk mapping and adaptation analysis for resilient infrastructure
Summary of hydroclimatic change effects on stormwater BMPs in different regions of the U.S.
National Stormwater Calculator Update – informing management of extreme storm events

Ground Water Vulnerability – assessing extreme precipitation events and impacts on contaminant transport

HAB models, software, tools
Recommendations for water system recharge to aquifers
Recommendations for stormwater capture and on-site use

Modeling and monitoring the influence of stormwater on groundwater quality and aquifer recharge
Development of risk-based guidance for fit-for-purpose treatment and reuse of wastewater
Optimization of wastewater and water reuse treatment processes
Systems analysis of alternative treatment approaches

Impacts of climate change on drinking water systems	HS.7.5039.693	CESER
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Wildfires

Projection of wildfire impacts under a changing climate	AE.6.2.2	CEMM
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Ecosystem services impacts	AE.6.3.5	CPHEA
	AE.6.3.4	CPHEA
	AE.8.2.3	CPHEA
	AE.9.1.2	CPHEA

Systems approaches to addressing impacts of wildland fires on air quality	AE.8.2.5	CESER
	AE.9.1.7	CPHEA

Fire emissions	AE.9.1.1	CPHEA
	AE.9.1.3	CEMM

Human exposures to and health impacts of wildfire smoke	AE.9.1.5	CPHEA
	AE.9.1.8	CPHEA

Air quality measurement during wildfire smoke events	AE.9.2.1	CEMM
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Drinking water contamination following wildfires	AE.9.1.6	CPHEA
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Risk communication about smoke before and during wildland fires	AE.9.2.2	CPHEA
	AE.9.2.3	CPHEA

Public Health and Ecosystem Services Benefits

Health Impacts and Benefits Assessment

Epi/clinical/tox data on health and environmental impacts of air pollution exposure	AE.3.5.1	CPHEA
	AE.3.5.2	CPHEA

Linkage of climate projections and CMAQ air quality evaluations	AE.6.2.1	CEMM
	AE.6.2.3	CEMM

Water Network Tool for Resilience (WNTR)

Summary of projected air quality and health impacts of wildfire in the U.S. under different temperature scenarios

Summary of impacts to watersheds from wildland fire and extreme events on salmonid refugia and population viability
Summary of the effects of extreme events on and emerging risks to forested watersheds
Models of wildfire effects on stream and lake water quality
Literature Assessment of Wildland Fire Effects on Air Quality and Water Quality

Bayesian networks for assessing and managing wildfire risks to humans and the environment

A Framework for Assessing Trade-Offs in Wildland Fire Management

Synthesis of the Understanding Emission Factors, Chemistry and Human and Ecological Health Hazards from Fires at the Wildland Urban Interface

Multi-year Fire Activity and Emissions Inventory Using the Best Available Data and Reconciliation Techniques

Advanced Individual-Level Air Pollution Exposure Models for Improving Exposure Assessments for Wildland Fires
Estimated Health Impact of Wildfires in the Vulnerable Community

Wildland Fire Solutions-Driven Research Pilot: Clean Air Spaces

Database of Vulnerability of Public Drinking Water Supplies to Wildland Fire-Related Degradation in Water Quality

Strategies for Effective Health Risk Communication during Wildfire Smoke Episodes

Strategies for Improving Public Health Wildland Fire Smoke Communication

Estimates of the effect of changing environmental conditions on the chemistry and health impact of air pollution mixtures.

Estimated effects of changing environmental conditions on responsiveness to air pollution

Summary of changes in air quality and health impacts in the U.S. at 2050 and 2090 projected using multiple earth system models and emission scenarios

Summary of estimated relationship between national temperatures and air quality (O3/PM2.5 concentrations) based on multiple models

Climate scenarios and decision support	AE.6.1.1	CPHEA
	AE.6.1.2	CPHEA
	SHC.9.2.1	CEMM
	SHC.9.2.2	CESER

Ecosystem Impacts and Services Assessment

Coastal and estuarine impacts	AE.6.4.1	CPHEA
	SHC.10.5.2	CEMM

Coral reefs	AE.6.4.4	CPHEA
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Transitions

Energy and emissions modeling systems (GCAM-USA, MARKAL/TIMES, GLIMPSE, COMET)	AE.5.1.2	CEMM
	AE.5.1.3	CEMM
	AE.5.1.4	CEMM
	AE.5.1.5	CEMM
	AE.5.3.1	CEMM
	AE.5.3.2	CEMM

Emissions data and methods	AE.2.1.8	CEMM
	AE.2.1.12	CEMM
	AE.2.3.4	CEMM
	AE.2.6.1	CEMM
	AE.2.6.2	CEMM

AE	43	
HS	3	
SHC	16	
SSWR	7	69
CEMM	30	
CESER	15	
CPHEA	24	69

Updated LASSO Web Application

ICLUS Scenario Data

Comparison of a Framework for Incorporating Ecosystem Services into Decision Making across Five US Case Studies: Governance, Engagement, Tools, Assessment, and Benefits

Consideration of Ecosystem Services at Cleanup Sites – A Retrospective Analysis and Synthesis of Existing ORD Research

Report estimating site-specific gains and losses of tidal wetland ecosystem services due to sea level rise and extreme weather events

An Ecosystem Services and Ecological Integrity Decision Support System: Strengthening Resiliency in Coastal Watersheds

Synthetic principles for adaptation planning and decision analysis to improve resilience of natural resources under changing environmental conditions

Summary of method and an analysis using the method for projecting future-year emission inventories for non-EGU sources such as industrial sources

Characterization of cost and emissions savings associated with Energy Efficiency and Renewable Energy to support control strategy development

Summary of formal scenarios methods to investigate the efficacy of existing regulations and potential policies in protecting air quality

Updates and improvements to GLIMPSE framework

Analysis of the energy and emission implications of deploying low-emission hydrogen fuels in the transportation sector
Updated GCAM-USA model with enhancements to support Agency applications

Summary of emissions from a pilot-scale investigation for the co-combustion of various biomass materials and coal

Summary of the impact of appliance technology, fuel, and measurement method on the emissions from residential wood
FY21 Annual Summary of NGEM and Fugitive, Area Source, and Fenceline Research

Summary of Temporal Patterns and Biophysical Controls on Methane Emissions from Reservoirs

An Estimate of Methane Emissions for U.S. Reservoirs for Inclusion in the Annual Inventory of U.S. Greenhouse Gas Emissions and Sinks

Research Program	RFA Title
A-E	Interventions and Communication Strategies to Reduce Health Risks of Wildland Fire Smoke Exposures
SSWR	National Priorities: Systems-Based Strategies to Improve The Nation's Ability to Plan And Respond to Water Scarcity and Drought Due to Climate Change
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ACE	Air, Climate And Energy (ACE) Centers: Science Supporting Solutions
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ACE	Particulate Matter and Related Pollutants in a Changing World
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Project Title
N/A - awards anticipated 2021/09
Fuel Reduction Techniques as Effective Forested Watershed Management Practices against Wildfire: Drinking Water Quality Aspects
An Integrated Modeling and Decision Framework to Evaluate Adaptation Strategies for Sustainable Drinking Water utility management under drought and climate change
Prediction of Nonlinear Climate Variations Impacts on Eutrophication and Ecosystem Processes and Evaluation of Adaptation Measures in Urban and Urbanizing Watersheds
Preparing for Water Scarcity: Learning from California's Recent Drought
SEARCH: Solutions to Energy, AiR, Climate, and Health
Regional Air Pollution Mixtures: The past and future impacts of emissions controls and climate change on air quality and health
Wildfires in the Rocky Mountains Region: Current and Future Impacts on PM2.5, Health, and Policy
Ensemble Analysis of Global Change Projections for US Air Quality Using a Novel Combination of Lagrangian and Gridded Air Quality Models
Effects of Changes in Climate and Land Use on U.S. Dust and Wildfire Particulate Matter
Rethinking the Formation of Secondary Organic Aerosols (SOA) Under Changing Climate by Incorporating Mechanistic and Field Constraints
Quantifying Risks from Changing U.S. PM2.5 Distributions Due to Climate Variability and Warming with Large Multi-Model Ensembles and High-Resolution Downscaling
Integrated Analysis of Land Use-Based Policies for Improving Air and Water Quality: A Focus on Agricultural Reactive Nitrogen and Wildland Fire Emissions as Climate, Land Use and Anthropogenic Emissions Change

PI, Institution
N/A
Tanju Karanfil, Clemson University
Kenan Ozekin, Water Research Foundation
Michael Barber, University of Utah
Ellen Hanak, Public Policy Institute of California
Michelle Bell, Yale University
Petros Koutrakis, Harvard University
Yang Liu, Georgia Institute of Technology
Brian Lamb, Washington State University
Loretta Mickley, Harvard University
Jose Jimenez, University of Colorado Boulder
Arlene Fiore, Lamont Doherty Earth Observatory of Columbia University
Armistead (Ted) Russell, Georgia Institute of Technology

Categories	Grant Start Date
wildfires, health	N/A
wildfires, drinking water	2015/09
drought, drinking water	2015/09
drought, wildfires, drinking water	2015/09
drought, drinking water	2015/09
energy transition, air quality, health	2015/10
impacts on health, energy transition, life cycle analysis, air quality, health	2015/12
wildfires, air quality	2016/01
air quality	2016/01
wildfires, dust, air quality	2016/01
air quality	2016/01
air quality	2016/01
air quality, ecosystems	2016/01

Grant End Date
N/A
2019/08
2019/08
2021/08
2019/08
2022/09
2022/11 (anticipated)
2020/12
2020/12
2020/12
2020/10
2020/12
2020/12

Abstract link
RFA link: https://www.epa.gov/research-grants/interventions-and-communication-strategies-reduce-health-risks-wildland-fire-smoke
https://cfpub.epa.gov/ncer/abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/10493/report/0
https://cfpub.epa.gov/ncer/abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/10496/report/0
https://cfpub.epa.gov/ncer/abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/10495/report/0
https://cfpub.epa.gov/ncer/abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/10494/report/0
https://cfpub.epa.gov/ncer/abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/10601/report/0
https://cfpub.epa.gov/ncer/abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/10615/report/0
https://cfpub.epa.gov/ncer/abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/10567/report/0
https://cfpub.epa.gov/ncer/abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/10568/report/0
https://cfpub.epa.gov/ncer/abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/10569/report/0
https://cfpub.epa.gov/ncer/abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/10571/report/0
https://cfpub.epa.gov/ncer/abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/10572/report/0
https://cfpub.epa.gov/ncer/abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/10574/report/0

ACE	Particulate Matter and Related Pollutants in a Changing World
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ACE	Particulate Matter and Related Pollutants in a Changing World
ACE	Particulate Matter and Related Pollutants in a Changing World
ACE	Air, Climate And Energy (ACE) Centers: Science Supporting Solutions
SSWR	Harmful Algal Blooms
SHC	Contaminated Sites, Natural Disasters, Changing Environmental Conditions and Vulnerable Communities: Research to Build Resilience
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SHC	Contaminated Sites, Natural Disasters, Changing Environmental Conditions and Vulnerable Communities: Research to Build Resilience

Effects of Ammonia on Secondary Organic Aerosol Formation in a Changing Climate
The Effect of Ammonia on Organic Aerosols in a Changing Climate
Interplay Between Black and Brown Carbon from Biomass Burning and Climate
Planning for an Unknown Future: Incorporating Meteorological Uncertainty into Predictions of the Impact of Fires and Dust on US Particulate Matter
Evaluating the Timeline of Particulate Matter Exposure from UrbanTransportation and Land-Use Greenhouse Gas Mitigation Strategies Using a Novel Modeling Framework
Particulate Matter Prediction and Source Attribution for U.S. Air Quality Management in a Changing World
Optimal Energy Portfolios to Sustain Economic Advantage, Achieve GHG Targets, and Minimize PM2.5
Center for Air, Climate, and Energy Solutions (CACES)
Development of a multi-scale management tool for predicting and mitigating HABs in Ohio River watersheds
Toxic Tides: Risks and Resilience to Coastal Flooding of Contaminated Sites
Building Resilience in Vulnerable Older Adult Communities Facing Increased Exposure Risks to Wastewater Contamination from Flooding in Puerto Rico
Building Community Resilience to Natural-disaster-Driven Contaminant Exposures Through System-level Risk Analysis, Management, and Readiness
Building Resilience to PFAS Exposure on Vulnerable Coastal Communities Prone to Extreme Weather Floods: Brevard County FL as a Case Study
Engaging the Galena Park Community to Build Resilience to Excess Industrial Pollutant Releases after Hurricanes and Floods in Greater Houston
Predicting Drinking Water Contamination from Extreme Weather to Reduce Early Life Contaminant Exposures

Donald Dabdub, University of California Irvine
Rodney Weber, Georgia Institute of Technology
Shane Murphy, University of Wyoming
Emily Fischer
Gregory Rowangould, University of Vermont (previously University of New Mexico)
Xin-Zhong Liang, University of Maryland College Park
Michael Kleeman, University of California - Davis
Allen Robinson, Carnegie Mellon University
Mazeika Sullivan, The Ohio State University
Lara Cushing, University of California - Los Angeles
Kaoru Ikuma, Iowa State University
Mark Borsuk, Duke University
Katherin Quiñones, University of Florida
Weihsueh Chiu, Texas A&M University
Jacob Hochard, University of Wyoming

air quality	2016/01
air quality	2016/01
wildfires, aerosol impact on climate	2016/01
dust, wildfires, air quality	2016/01
transportation, air quality	2016/01
wildfires, air quality	2016/04
energy transition, air quality	2016/04
energy transition, life cycle analysis, air quality health	2016/05
HABs	2018/1
coastal flooding, hazardous waste, wastewater treatment	2020/08
flooding, wastewater contamination	2020/08
natural disasters, contaminant exposures	2020/08
flooding, PFAS	2020/08
hurricanes/flooding	2020/08
hurricanes/flooding, drinking water	2020/12

2021/12
2020/12
2020/12
2020/12
2021/12
2021/03
2021/03
2022/04 (anticipated)
2022/12
2023/07
2023/07
2023/07
2023/07
2023/07
2023/11

<https://cfpub.epa.gov/ncer/abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/10575/report/0>

<https://cfpub.epa.gov/ncer/abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/10576/report/0>

<https://cfpub.epa.gov/ncer/abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/10577/report/0>

<https://cfpub.epa.gov/ncer/abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/10578/report/0>

<https://cfpub.epa.gov/ncer/abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/10579/report/0>

<https://cfpub.epa.gov/ncer/abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/10569/report/0>

<https://cfpub.epa.gov/ncer/abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/10573/report/0>

<https://cfpub.epa.gov/ncer/abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/10614/report/0>

<https://cfpub.epa.gov/ncer/abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/10844/report/0>

<https://cfpub.epa.gov/ncer/abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/11076/report/0>

<https://cfpub.epa.gov/ncer/abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/11077/report/0>

<https://cfpub.epa.gov/ncer/abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/11078/report/0>

<https://cfpub.epa.gov/ncer/abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/11080/report/0>

<https://cfpub.epa.gov/ncer/abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/11081/report/0>

<https://cfpub.epa.gov/ncer/abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/11145/report/0>

Project Number	Project Regions (*Lead)
Green Infrastructure	
2339	Region 4
Harmful Algal Blooms	
<u>2126</u>	Region 4; Region 3; Region 5*
<u>2139</u>	Region 7
<u>2187</u>	Region 10 Region 4; Region 7; Region 8;
<u>2254</u>	Region 10*
1893	Region 3
2457	Region 10 Region 7*;
2463	Region 8
Wildfire Smoke	
<u>2171</u>	Region 9
<u>2243</u>	Region 9
<u>1952</u>	Region 9*; Region 10
<u>1927</u>	Region 10
Ocean Acidification	

ERIS Primary Categories

Resiliency

General Water Quality Issues

General Water Quality Issues

General Water Quality Issues

Nutrients

General Water Quality Issues;Nutrients

General Water Quality Issues;Nutrients

General Water Quality Issues

Clean Air/Air Quality (including Ozone)

Advanced Monitoring and Sensors for Pollutants

Advanced Monitoring and Sensors for Pollutants

Advanced Monitoring and Sensors for Pollutants;Clean Air/Air Quality (including Ozone)

Regional Primary Categories**Project Title**

Resiliency

Using Green Infrastructure to Address Climate Change Resiliency: A Case Study in North Birmingham, AL

HABs

Development of a harmful cyanobacteria-algae bloom (CyanoHAB) risk model for the Ohio River

HABs;Sensors

The relationship between cyanobacterial abundance and toxin concentrations: Can analytical methodologies of cyanobacteria populations measurements be used to predict the potential cyanotoxin exposure? Phase II Comprehensive Monitoring and Analysis of Dynamics of Harmful Algal Blooms

HABs

HABs

Comprehensive Monitoring and Analysis of Dynamics of Harmful Algal Blooms
Assessing existing water quality and cyanobacterial data for characterizing the risk of harmful algal blooms in the future on the mainstem of the Ohio River and major tributaries.

Water Quality;HABs;Nutrients

A strategy for early warning cyanotoxin producing and rapidly detecting toxic species to protect source water in Oregon and Washington States

Water Quality;HABs

Risk Communication about Harmful Algal Blooms to Recreational Water Users

Water Quality;HABs

Air Quality;Wildfires

DIY air cleaners effectively reduce wildfire smoke exposure indoors?

Air Quality;Risk Assessment;Wildfires

Effect of Escalating Instruction Levels on Mask Filtering Efficiency and Protectiveness

Air Quality;Wildfires;Sensors

Deployment and performance testing of next-generation air sensors during wildland fire smoke events (Region 9 sites)

Air Quality;Sensors

Deployment and performance testing of next-generation air sensors during wildland fire smoke events (at Region 10 sites)

Project Type (1)	Project Status	ORD Program(s)	ORD Center(s)	Fiscal Year(s)	Start Date	Completion Date	Approved Funding
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RESES	Completed	SHC	CESER	2014	2014-11-01	2018-12-01	
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RARE	Active	SSWR;SHC	CEMM	2019	2019-03-19	2021-03-19	
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RARE	Active	SSWR	CESER	2020	2020-01-31	2021-12-31	
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RARE	Active	SSWR	CPHEA; CEMM	2020	2019-10-01	2021-12-31	
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RARE	Active	SSWR	CPHEA	2021;2021;2021;2021	2021-02-01	2022-06-30	
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Ex. 5 Deliberative Process (DP)

RARE	Completed	SSWR	CEMM	2018	2017-11-30	2019-06-28	
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RSTIP	Completed	SSWR	CEMM		2018-08-01	2019-07-31	
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RSTIP	Completed	SSWR	CEMM; ORM		2019-08-01	2020-05-20	
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RARE	Active	A-E	CEMM	2020	2020-02-01	2022-01-31	
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RARE	Active	SHC;A-E	CPHEA	2021	2020-11-01	2022-10-01	
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RARE	Completed	A-E	CEMM	2018	2018-01-18	2020-06-30	
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RARE	Completed	A-E	CEMM	2018	2018-01-08	2020-06-30	
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<u>1744</u>	Region 10
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1830	Region 10
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1733	Region 1
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Endangered Species

<u>1821</u>	Region 10
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<u>1651</u>	Region 10
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Hazardous Waste / Flooding

<u>2252</u>	Region 10
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<u>2456</u>	Region 10
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<u>2362</u>	Region 10
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<u>2367</u>	Region 2
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<u>2336</u>	Region 2; Region 3*
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Ecosystem Restoration

<u>2374</u>	Region 4
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Emissions

General Water Quality Issues

General Water Quality Issues

General Water Quality Issues;Nutrients

General Water Quality Issues

General Water Quality Issues

General Water Quality Issues;Water Quantity and Reuse;Drinking Water and Wastewater Treatment

None

Water and Wastewater Infrastructure;Resiliency;Remediation of Soil and Groundwater including Vapor Intrusion;Toxics a

Clean Air/Air Quality (including Ozone);Resiliency

Resiliency;Remediation of Soil and Groundwater including Vapor Intrusion;Toxics and Emerging Contaminants (incl. PFA

Resiliency;Water and Wastewater Infrastructure

Water Quality;Nutrients	Toward a unified understanding of coastal acidification processes in Puget Sound: Exploring synergies between cultural eutrophication, ocean acidification, and natural variability in critical nearshore environments
Water Quality;Nutrients;Resiliency	Identifying local factors which may exacerbate coastal acidification in the Tillamook estuary (Oregon)
Nutrients	Impacts of Coastal Acidification on the Ecological Health of Shellfish in Southern New England
Resiliency	Medium cold: using kriged remotely sensed temperature to quantify medium resolution thermal regime metrics for policy development in PNW streams
Water Quality;Resiliency	Big cold and small cold; quantifying thermal regime metrics for policy development in PNW streams
Water Quality;Remediation;Nutrients	Solar Augmented Anaerobic Treatment of Source Separated Fecal Matter
Remediation	Human-Centered Design to Improve Management of Household Hazardous Waste Programs in Alaskan Tribal Communities
Remediation;Risk Assessment;PFAS/PFOA;Resiliency;Metals	Assessing the health risks from soil, sediment, and water contamination related to disposal sites near Alaskan federally recognized Tribes
Air Quality;Resiliency	Cano Martian Pena Community Citizen monitoring of indoor fungal and bacterial microbiome levels to assess reductions in asthma triggers before and after remediation of flooding events including those occurring after natural disasters
Remediation;Risk Assessment;Resiliency	Emergency Planning with Our States: Interactive Mapping of Flood-Induced Contaminants from Hazardous Waste Sites in EPA Regions
Resiliency;Water Quality	Identification, assessment and tracking of Community Assets and Vulnerabilities in Conjunction with Restoration Efforts in Pensacola and Perdido Bay Estuaries

RARE	Completed	SSWR;A-E	CPHEA	2015	2016-10-01	2020-06-30
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RARE	Completed	SSWR;A-E	CPHEA	2017	2017-02-01	2020-09-30
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RARE	Completed	SSWR;SHC; A-E	CEMM	2016	2015-10-01	2020-11-30
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RARE	Active	SSWR;A-E	CEMM; CPHEA	2017	2017-02-01	2021-02-12
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RARE	Active	SSWR;A-E	CEMM; CPHEA	2016	2016-04-01	2021-03-31
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RARE	Active	SSWR;SHC; A-E	CESER	2021	2020-10-01	2021-09-30
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RSTIP	Active	SHC	CEMM; ORM; CESER		2020-10-01	2021-10-31
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RESES	Active	SHC	SCS; CPHEA; CESER		2020-09-30	2023-09-29
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RESES	Active	SHC	ORM; CEMM		2020-10-01	2022-09-30
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RESES	Active	SHC	CEMM; CESER	2018	2018-08-15	2022-09-30
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RESES	Active	SHC	CEMM	2020	2020-10-01	2022-09-30
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Ex. 5 Deliberative Process (DP)

1. Regional research programs

RARE: Regional Applied Research Efforts

RESES: Regional Sustainability and Environmental Sciences

RSTIP: Regional / State / Tribal Innovation Projects

Clean Air/Air Quality (including Ozone)

Air Quality

Characterizing emissions from pneumatic controllers at oil and natural gas well pads in the Uinta Basin using extractive sampling and hyperspectral imaging technologies

RARE Completed A-E

CEMM 2016

2016-01-01 2018-12-31

